CONVERTEON™ Family
AT-CM20x Series Media Converter Line Cards
Installation Guide

Allied Telesis, Inc.
www.alliedtelesis.com

Overview

The AT-CM20x Series (AT-CM201, AT-CM202, and AT-CM202/x Series) line cards are 10/100 Mbps copper-to-fiber media converter line cards. These line cards can be installed in any of the Converteon™ Media Converter chassis, including the AT-CV5000, AT-CV1000, and AT-CV1200. Each line card features one fiber optic port and one copper twisted pair port. The fiber optic port operates at a fixed operating speed of 100 megabits per second (Mbps) and the twisted pair port operates at 10 or 100 Mbps speed. The fiber optic port is IEEE 802.3ah-compliant and has a either a simplex SC, dual SC, or ST connector with a maximum operating distance from 2 kilometers (1.24 miles) to 40 kilometers (24.8 miles), depending on the model. The twisted pair port has an RJ-45 connector and a maximum operating distance of 100 meters (328 feet). Both ports feature half- or full-duplex mode operation. The line card is hot-swappable into and out of the chassis.

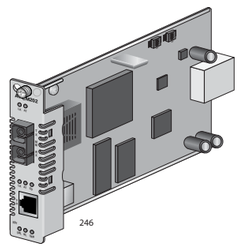

Figure 1. AT-CM20x Series Line Card (AT-CM202 Model)

613-000608 Rev B

Related Documents

This installation guide is an abbreviated version of the installation procedure. For details on the components, features, and functions of this product, refer to the following documents on our web site, www.alliedtelesis.com:

- ❑ *AT-CV5000 Media Converter Chassis Installation Guide PN 613-50580-00*
- ❑ *AT-CV1000 Media Converter Chassis Installation Guide PN 613-50582-00*
- ❑ *AT-CV1200 Media Converter Chassis Installation Guide PN 613-000331*
- ❑ *Converteon™ Media Converter Line Cards Reference Guide PN 613-50581-00*
- ❑ *AT-S70 Management Software User's Guide PN 613-50617-00*

Package Contents

Make sure the following items are included in the shipping package. If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.

- ❑ One AT-CM20x Series Line Card
- ❑ This Installation Guide
- ❑ Warranty Card

AT-CM20x Series Line Card Components

The AT-CM20x Series line card, shown in Figure 2, features the following components:

- ❑ One 100Base-FX fiber optic port with one simplex/dual SC or ST connector
- ❑ One 10/100Base-TX twisted pair port with an RJ-45 connector
- ❑ Two DIP switches
- ❑ Port and system status LEDs

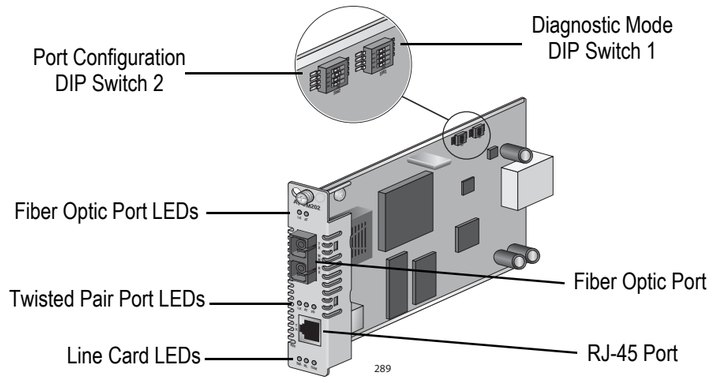

Figure 2. AT-CM20x Series Line Card Components

Fiber Optic and RJ-45 Ports

The AT-CM20x Series line card features one fiber optic port and one twisted pair port.

The fiber optic port features one simplex/dual SC or ST connector, and has a fixed operating speed of 100 megabits per second (Mbps). The speed cannot be changed. The port has a maximum operating distance from 2 kilometers (1.24 miles) to 40 kilometers (24.8 miles) and can use either a single-mode (9/125 micron) or a multi-mode (50/125 or 62.5/125 micron) fiber optic cable.

Laser
Class 1 laser product.

Laser
Do not stare into the laser beam.

The twisted pair port is 10/100Base-TX compliant and has a speed of 10 megabits per second (Mbps) and 100 Mbps. The port features an 8-pin RJ-45 connector with a maximum operating distance of 100 meters (328 ft). Category 3 or better, 100 ohm shielded or unshielded, twisted pair cabling is required for 10 Mbps operation. Category 5 or Enhanced Category 5 (5E), 100 ohm shielded or unshielded, twisted pair cabling is required for 100 Mbps operation.

Status LEDs

The following table lists the line card status LEDs.

LED	Color	Description
RDY	Green	The line card has passed diagnostics.
	OFF	The line card has not passed diagnostics.
SML	Green	The Smart MissingLink mode is enabled.
	OFF	The Smart MissingLink mode is disabled.
ML	Green	The MissingLink mode is enabled.
	OFF	The MissingLink mode is disabled.
OAM	Green	The OAM mode is enabled (visible or bypass). The OAM mode setting is set by the DIP switches. For more information on the DIP switches, refer to the *Converteon™ Media Converter Line Cards Reference Guide*.
	OFF	The OAM mode is disabled.

The following table lists the fiber optic port and twisted pair port LEDs.

LED	Color	Description
LK	Green	Link established on the port.
	Blinking Green	While in Smart MissingLink mode, a valid connection is established on the port while a link on the other port is lost.
	OFF	No link established on the port.
AT	Blinking Green	TX/RX activity detected on the port.
	OFF	No activity detected on the port.
FD (for twisted pair port only	Green	The port is operating in full-duplex mode.
	OFF	The port is operating in half-duplex mode.

Features

The AT-CM20x Series line card is designed to support Link Test, MissingLink™ (ML), Smart MissingLink (SML), and Auto-MDI/MDIX features. In addition, the line card also supports Operations Administration Maintenance (OAM) capability as being standardized in IEEE 802.3ah working group to support extended diagnostic services.

The DIP switches are used to set these features. For more information, refer to the *Converteon™ Media Converter Line Cards Reference Guide.*

DIP Switches

The AT-CM20x Series line card features two DIP switches, Diagnostic Mode DIP Switch 1 (Table 1) and Port Configuration DIP Switch 2 (Table 2), as shown in Figure 2.

The tables below list the positions of these two DIP switches.

Table 1. Diagnostic Mode DIP Switch 1 Positions

Operating Mode	DIP 1	DIP 2	DIP 3	DIP 4
Smart MissingLink (SML)	OFF	**ON**	**ON**	X
MissingLink (ML)	OFF	OFF	**ON**	X
OAM Bypass	**ON**	OFF	OFF	X
OAM Visible	**ON**	**ON**	OFF	X
Link Test (default)	OFF	OFF	OFF	X
Manufacturing Default Settings	OFF	OFF	OFF	OFF

"X" means the DIP switch position could be either ON or OFF.

Table 2. Port Configuration DIP Switch 2 Positions

Operating Mode	DIP 1	DIP 2	DIP 3	DIP 4
Auto MDI-X Enable (default)	X	OFF	X	X
Auto MDI-X Disable	X	**ON**	X	X
Manufacturing Default Settings	OFF	OFF	OFF	OFF

"X" means the DIP switch position could be either ON or OFF.

Installing an AT-CM20x Series Line Card

Note
The Converteon™ line cards can be installed in any of the line card slots located on the front panel of a Converteon™ chassis.

To install an AT-CM20x Series line card, perform the following procedure:

Caution
Before installing an AT-CM20x Series line card, refer to the appropriate *Converteon™ Series Chassis Installation Guide* for electrical safety and emission information.

Caution
Be sure to observe all standard electrostatic discharge (ESD) precautions, such as wearing an antistatic wrist strap, to avoid damaging the device. A line card can be damaged by static electricity.

1. Remove the Converteon™ line card from its shipping package and store the package in a safe place.

   You must use the original package if you need to return the unit to Allied Telesis.
2. Select an empty line card slot in the Converteon™ chassis for the card.
3. Remove the AT-CV5PNL1 blank slot cover from the selected slot.

   Keep the blank slot cover in a safe area in case you remove the line card. The blank slot cover is used to keep dust from getting into the chassis and maintains proper airflow, cooling, and ventilation throughout the chassis.
4. Locate the alignment guides in the chassis slot
5. Align the back edge of the line card with the alignment guides located inside the slot. Avoid touching the line card components.
   – For the AT-CV5000, align with the top and bottom alignment guides.
   – For the AT-CV1000 and AT-CV1200, align with the left and right alignment guides.
6. Slide the line card until the front of the card is flushed with the front of the chassis.
7. Use a Phillips screwdriver to tighten the captive screw on the line card.
8. Repeat this procedure to install additional line cards.

Cabling an AT-CM20x Series Line Card

To connect the cables to an AT-CVM20x Series line card, refer to the *Converteon™ Media Converter Line Cards Reference Guide* for instructions.

Technical Specifications

Physical, Environmental, and Electrical Rating

Dimensions (H x W x L)	.855" x 2.89" x 5.1" (2.2 cm x 7.3 cm x 13.0cm)
Operating Temperature	0° C to 40° C (32° F to 104° F)
Storage Temperature	-25° C to 70° C (-13° F to 158° F)
Operating Relative Humidity	5% to 90% RH (non-condensing)
Storage Relative Humidity	5% to 95% RH (non-condensing)
Operating Altitude Range	Up to 3,048 m (10,000 ft)
MTBF (Telcordia Standards)	1,200,000 hrs
Power Consumption	3.0 watts

Optical

Connector Type	Simplex/Dual SC or ST connector
Wavelength (nm)	1310 nm
Fiber Type	Single-mode or Multi-mode
Operating Distance (km)	2 km (1.24 miles) to 40 km (24.8 miles),
Optical Output Power (dBm)	-20 dBm to -14 dBm
Receiver Power Sensitivity (dBm)	-31 dBm to -11 dBm

Electrical Safety and Emission Statement

Standards: This product meets the following standards when installed in compliant host equipment.

U.S. Federal Communications Commission

RADIATED ENERGY
Note: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Note: Modifications or changes not expressly approved of by the manufacturer or the FCC, can void your right to operate this equipment.

Industry Canada

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Emission	FCC Class A, EN55022 Class A, VCCI Class A, C-TICK, CE
WARNING:	In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
Immunity	EN55024
Electrical Safety	UL60950-1 ($_{c}$UL$_{us}$), EN60950-1 (TUV), CAN/CSA C22.2 No. 60950-1

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